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09/805,529	03/13/2001	Akira Shiokawa	NAK1-BO21	2114
21611	7590	11/01/2005	EXAMINER	
SNELL & WILMER LLP 600 ANTON BOULEVARD SUITE 1400 COSTA MESA, CA 92626			NGUYEN, JIMMY H	
			ART UNIT	PAPER NUMBER
			2673	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/805,529

Applicant(s)

SHIOKAWA ET AL.

Examiner

Jimmy H. Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5-14, 17-20, 22, 23, 25 and 27-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-14, 17-20, 22, 23, 25 and 27-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This Office Action is made in response to applicant's amendment filed on 12/02/2004.

Claims 1-3, 5-14, 17-20, 22, 23, 25, and 27-38 are currently pending in the application. An action follows below:

#### ***Allowable Subject Matter***

2. The indicated allowability of claims 1-3, 5, 6, 9, 10, 12-14, 17, 18, 21, 23, 25, 29-31, and 34-38 in the Office Action dated 08/25/2004 is withdrawn in view of the new grounds of rejections follow.

#### ***Notice to Applicants***

3. It is noted to Applicants that original disclosure, when filed, expressly teaches the scan driver 104 generating and applying set-up, scan, sustain, and erase pulses to the scan electrode group 19a (see figs. 4-6, specification, page 17, last paragraph) and the sustain driver 105 generating and applying sustain pulses to the sustain electrodes 19b (see figs. 4-6, specification, page 18, lines 13-17). Further, the drawing, e.g., fig. 4, expressly shows both the polarity of the sustain pulses applied to the scan electrodes 19a and the polarity of the sustain pulses 19b applied to the sustain electrodes 19b are positive. Furthermore, the waveform of the potential difference between electrodes 19a and 19b as shown in any of figs. 15 and 22-24 is not the waveform of a signal applied from either a scan driver 104 or a sustain driver 105. In fact, the waveform of the potential difference between electrodes 19a and 19b is just an illustration of the potential difference between electrodes 19a and 19b and the signal having such waveform is not actually generated by a driving circuit. In other words, a driving circuit for generating and applying a signal having a waveform of potential difference between electrodes 19a and 19b was

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not described. For this reason, the following objections and rejection under 35 USC 112, first paragraph, are applied.

4. It is also noted to Applicants that, in light of the pending specification, see page 22, line 14 through page 23, line 15, the claimed feature, "wherein a pulse waveform ... is reached", see last 5 lines of claim 1, is inherently caused by providing one of the first to third features as disclosed in the mentioned specification. In other words, if the reference teaches one of the first to third features as disclosed in the mentioned specification, the above underlined feature is inherently taught by the reference.

#### *Specification*

5. The disclosure is objected to because of the following informalities: the passage, page 15, lines 5-7, "In the discharge sustain period, sustain pulses are applied across the scan electrodes 19a and the sustain electrodes 19b with **alternating** polarity" is **not** consistent with drawings, specifically fig. 4 which shows the discharge sustain pulses applied to scan electrodes 19a and sustain electrodes 19b with the same positive polarity.

Appropriate correction is required.

#### *Drawings*

6. Figure 25 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted

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by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features, “a driving circuit successively applies a plurality of sustain pulses which alternate in polarity, to each of the plurality of discharge cells” as presently recited in claims 1, 2, 7, 17, 18, 19, 23, and 25, “a driving circuit successively applies a plurality of sustain pulses which alternate in polarity between each pair of first and second electrodes” as presently recited in claims 12, 14, 27, and 29, “a discharge sustaining step for successively applying a plurality of sustain pulses which alternate in polarity, to each of the plurality of discharge cells” as presently recited in claims 31-34, and “the initial part of a sustain pulse”, “a first amplitude change”, “a second amplitude change”, “sustain pulse amplitude”, and “a pulse period”, as presently recited in last 11 lines of claim 35, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

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renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

8. Claim 35 is objected to because of the following informalities: line 14, "and at" should be changed to --at-- because of a typo. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 35-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claims above, it is not clear what the applicant means the claimed features, "the initial part of a sustain pulse", "a first amplitude change", "a second amplitude change", and "the sustain pulse amplitude", as presently recited in independent claim 35. The original disclosure does not even teach or use terminologies similar to these features.

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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12. Claims 1-3, 5-14, 17-20, 22, 23, 25, and 27-38 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As per claims 1-3, 5-14, 17-20, 22, 23, 25, and 27-34, these claims contain the features, “a driving circuit successively applies a plurality of sustain pulses which alternate in polarity, to each of the plurality of discharge cells” as presently recited in independent claims 1, 2, 7, 17, 18, 19, 23, and 25, “a driving circuit successively applies a plurality of sustain pulses which alternate in polarity between each pair of first and second electrodes” as presently recited in independent claims 12, 14, 27, and 29, “a discharge sustaining step for successively applying a plurality of sustain pulses which alternate in polarity, to each of the plurality of discharge cells” as presently recited in independent claims 31-34. As best understood by the examiner, only the scan driver 104 corresponds to the claimed driving circuit because only this driver is capable of generating and applying a signal including a write pulse and a plurality of sustain pulses, to the scan electrodes 19a (a sustain driver 105 can't generate a write pulse and a data driver 106 can't generate either a write pulse or sustain pulses). See figs. 4-6 and the corresponding specification, specifically page 17, last paragraph, and page 18, lines 13-21. However, the sustain pulses generated by the scan driver 104 do not alternate in polarity, but all have the same positive polarity, as shown in any of figs. 4, 15, 16, and 22-24. In other words, such driving circuitry, which is capable of generating and applying a signal having a plurality of sustain pulses alternating in polarity, was not described in the specification. Accordingly, these claims contain

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the above underlined features, which were not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. See the "Notice to Applicants" section above.

As per claims 35-38, independent claim 35 recites "at least one of the first and second amplitude changes is more than twice the other amplitude change" (see lines 14-15), i.e., the first and second amplitude changes are not equal to each other. Independent claim 35 further recites "the sustain voltage is ... equal to both the first and second amplitude changes" (see last two lines). Examiner asserts that there is no such sustain voltage which is equal to two different amplitude changes.

13. Claims 35-38 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding to claims above, the disclosure, when filed, does not fairly convey to one of ordinary skill in the art that applicants had in their possession the claimed subject matter, "wherein ... amplitude changes", as presently recited in last 11 lines of independent claim 35, i.e., at least some claimed features, "the initial part of a sustain pulse", "first amplitude change", "second amplitude changes" and "sustain pulse amplitude", are not found in the original disclosure. Additionally to claim 38, the disclosure, when filed, does not fairly convey to one of ordinary skill in the art that applicants had in their possession the claimed feature, "the smaller ...



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voltage” as presently recited in lines 1-3 of claim 38. Further, see the drawing objection and the rejections under 35 USC 112, first and second paragraphs above.

14. It is noted Applicants that due to the rejections under 35 USC 112, first and second paragraphs above, the following art rejections are based as best understood by the Examiner.

***Claim Rejections - 35 USC § 102***

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16. Claims 7, 8, 11, and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Makino (US 6,426,732 B1).

As per claims 7 and 32, the claimed invention reads on Makino as follows: Makino discloses a panel display apparatus and an associate method for displaying an image in a discharge sustain period, the apparatus comprising a discharge panel (a plasma display panel PDP, see col. 4, line 8); and an inherent driving circuitry for applying a write pulse (scanning pulse 24, see col. 4, lines 11-14, also fig. 3) to selected discharged cells to write the image and for applying a plurality of sustain pulses to scanning electrodes and common electrodes (see col. 4, lines 7-23). Makino also teaches the sustain pulses (rectangular pulses having a width of  $t_2$  and an absolute amplitude of  $V_2$  or low voltage long pulses, see figs. 8A and 8B) alternating in polarity (see fig. 8B). As noting in fig. 8B, Makino further teaches wherein immediately before a leading edge of each sustain pulse (i.e., each rectangular pulse having a width of  $t_2$  and an

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absolute amplitude of V2 or low voltage long pulse), the driving circuitry applies a high voltage short pulse (a first negative pulse having a width  $t_1$  and an absolute voltage V1 as shown in fig. 8B) that is opposite in polarity to the sustain pulse (a first positive sustain pulse as shown in fig. 8B), to the discharge cell for a predetermined period of  $t_1$ . Accordingly, all the claimed limitations are read in the Makino reference.

Regarding to claims 8 and 11, Makino teaches that an absolute voltage of the short pulse is 200V and an absolute voltage of the sustain pulse (or a low voltage long pulse) is 130V.

***Claim Rejections - 35 USC § 103***

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 1-3, 5, 6, 9, 10, 12-14, 17-20, 22, 23, 25, 27-31, and 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makino (US 6,426,732 B1), and further in view of Mikoshiba et al. (US 6,456,265 B1), hereinafter Mikoshiba.

As per claims 9 and 10, as discussed in the rejection above, Makino further teaches that the predetermined period (or a time during which the absolute value of the voltage of the pulse is no smaller than the absolute value of the voltage of the sustain pulse) is a short time, e.g., 200 nanoseconds (see col. 6, lines 37-44). Accordingly, Makino discloses all the claimed limitations except that the predetermined period Makino is 200ns, rather than no more than 100ns as presently recited in claim 9 or not more than 50ns as presently recited in claim 10.

However, Mikoshiba discloses a related discharge display apparatus wherein the short pulse (26) is applied immediately before a leading edge of each sustain pulse (18) for a predetermined period of 40ns (see fig. 14, col. 7, lines 45-48) or 100ns (see col. 7, lines 50-62), which depends on the panel structure and physical characteristics of the display apparatus (see col. 9, lines 17-23). Therefore, while Makino may not exemplify particular predetermined period as presently claimed, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to make the Makino predetermined period of no more than 100ns or even 50ns in accordance with a panel structure and for a particular pane and physical characteristics of the display apparatus, as taught by Mikoshiba, because this would control the space charge to a driving signal applied to discharges electrodes during a discharge sustaining period of the driving signals, thereby preventing the increase of the discharge voltage and a decrease of the operating margin (see Mikoshiba, col. 10, lines 56-65).

As per claims 2, 3, 5, 6, 12-14, and 31, all limitations of these claims are similarly recited in claims 9 and 10 above, these claims are therefore rejected for the same reasons set forth in claims 9 and 10.

As per claim 1, this claim is similar to claim 2 except for the feature, "wherein a pulse ... is reached" as presently recited in last 5 lines of claim 1. Since Makino in view of Mikoshiba is capable of providing a first feature as disclosed in the "Notice to Applicants" section above, Makino in view of Mikoshiba discloses the invention of claim 1.

As per claims 23, 25, 29, 30 and 34, the claimed invention reads on Makino as follows: Makino discloses a panel display apparatus and an associate method for displaying an image in a discharge sustain period, the apparatus comprising a discharge panel (a plasma display panel

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PDP, see col. 4, line 8); and an inherent driving circuitry for applying a write pulse (scanning pulse 24, see col. 4, lines 11-14, also fig. 3) to selected discharged cells to write the image and for applying a plurality of sustain pulses to scanning electrodes and common electrodes (see col. 4, lines 7-23). Makino also teaches the sustain pulses (rectangular pulses having a width of  $t_2$  and an absolute amplitude of  $V_2$  or low voltage long pulses, see figs. 8A and 8B) alternating in polarity (see fig. 8B). As noting in fig. 8B, Makino further teaches wherein immediately after a trailing edge of each sustain pulse (i.e., each rectangular pulse having a width of  $t_2$  and an absolute amplitude of  $V_2$  or low voltage long pulse), the driving circuitry applies a high voltage short pulse (a first positive pulse having a width  $t_1$  and an absolute voltage  $V_1$  as shown in fig. 8B) that is opposite in polarity to the sustain pulse (a first negative sustain pulse as shown in fig. 8B), to the discharge cell for a predetermined period of  $t_1$ . Makino further teaches that the predetermined period (or a time during which the absolute value of the voltage of the pulse is no smaller than the absolute value of the voltage of the sustain pulse) is a short time, e.g., 200 nanoseconds (see col. 6, lines 37-44). Accordingly, Makino discloses all the claimed limitations except that the predetermined period Makino is 200ns, rather than no more than 100ns as presently recited in claim 9 or not more than 50ns as presently recited in claim 10.

However, Mikoshiba discloses a related discharge display apparatus wherein the short pulse (26) is applied immediately after a trailing edge of each sustain pulse (18) for a predetermined period of 40ns (see fig. 14, col. 7, lines 45-48) or 100ns (see col. 7, lines 50-62), which depends on the panel structure and physical characteristics of the display apparatus (see col. 9, lines 17-23). Therefore, while Makino may not exemplify particular predetermined period as presently claimed, it would have been obvious to a person of ordinary skill in the art at the

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time of the invention was made to make the Makino predetermined period of no more than 100ns or even 50ns in accordance with a panel structure and for a particular pane and physical characteristics of the display apparatus, as taught by Mikoshiba, because this would control the space charge to a driving signal applied to discharges electrodes during a discharge sustaining period of the driving signals, thereby preventing the increase of the discharge voltage and a decrease of the operating margin (see Mikoshiba, col. 10, lines 56-65).

As per claims 17-20, 22, 27, 28, 33, and 35-38, the claimed invention reads on Makino as follows: Makino discloses a panel display apparatus and an associate method for displaying an image in a discharge sustain period, the apparatus comprising a discharge panel (a plasma display panel PDP, see col. 4, line 8); and an inherent driving circuitry for applying a write pulse (scanning pulse 24, see col. 4, lines 11-14, also fig. 3) to selected discharged cells to write the image and for applying a plurality of sustain pulses to scanning electrodes and common electrodes (see col. 4, lines 7-23). Makino also teaches the sustain pulses (each sustain pulse having a period of  $t_1+t_2$  as shown in fig. 9B) alternating in polarity (see fig. 9B). Makino teaches an absolute value of a voltage  $V_1$  applied during a first period  $t_1$  higher than an absolute value of a voltage  $V_2$  applied during a second period  $t_2$ . Makino further teaches that an absolute voltage of the short pulse is 200V and an absolute voltage of the sustain pulse (or a low voltage long pulse) is 130V, i.e., this implies that the voltage  $V_2$  exceeds an absolute value of a discharge firing voltage which is normally greater than the voltage  $V_2$  by 50V. Further, Makino teaches that the predetermined period (or a time during which the absolute value of the voltage of the sustain pulse exceeds the absolute value of the discharge firing voltage) is a short time, e.g., 200 nanoseconds (see col. 6, lines 37-44). Accordingly, Makino discloses all the claimed limitations

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except that the predetermined period of Makino is 200ns, rather than no more than 100ns as presently claimed.

However, Mikoshiba discloses a related discharge display apparatus wherein the short pulse (26) is applied immediately after a trailing edge of each sustain pulse (18) for a predetermined period of 40ns (see fig. 14, col. 7, lines 45-48) or 100ns (see col. 7, lines 50-62), which depends on the panel structure and physical characteristics of the display apparatus (see col. 9, lines 17-23). Therefore, while Makino may not exemplify particular predetermined period as presently claimed, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to make the Makino predetermined period of no more than 100ns or even 50ns in accordance with a panel structure and for a particular pane and physical characteristics of the display apparatus, as taught by Mikoshiba, because this would control the space charge to a driving signal applied to discharges electrodes during a discharge sustaining period of the driving signals, thereby preventing the increase of the discharge voltage and a decrease of the operating margin (see Mikoshiba, col. 10, lines 56-65).

#### ***Response to Arguments***

19. Applicant's arguments, see page 15 and 17 of the amendment filed 12/02/2004, with respect to the rejections in the Office Action dated 08/25/2004, have been fully considered and are persuasive. The rejections in the Office Action dated 08/25/2004 have been withdrawn.

#### ***Conclusion***

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy H. Nguyen whose telephone number is 571-272-7675. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached at 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JHN  
October 25, 2005



Jimmy H. Nguyen  
Primary Examiner  
Art Unit: 2673